Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

00-OSS-317

MAY 5 2000

Mr. M. A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504

Dear Mr. Wilson:

HANFORD FACILITY DANGEROUS WASTE PART A PERMIT APPLICATION, FORM 3, REVISION 6, FOR THE 241-Z TREATMENT AND STORAGE TANKS (241-Z) (TSD: T-2-5)

Enclosed is the Hanford Facility Dangerous Waste Part A Permit Application (Part A), Form 3, Revision 1, for the 241-Z. The 241-Z is located in the 200 West Area of the Hanford Facility.

The Part A, Form 3, Revision 6, has been revised to add Dangerous Waste Numbers D004 (arsenic), D006 (cadmium), and D010 (selenium). The U.S. Department of Energy, Richland Operations Office and Fluor Hanford, Inc. (FHI) Nuclear Material Stabilization Project will be initiating a stabilization process for the plutonium bearing solutions that will generate a large volume of mixed waste. This waste will be treated and stored in the 241-Z tank system. The addition of these dangerous waste numbers is required in accordance with Washington Administrative Code 173-303-805(7)(a).

If you have any questions regarding the Part A, Form 3, Revision 6, please contact Astrid Larsen, of my staff, on (509) 376-9333 or Jeff Bramson, of FHI, on (509) 373-1359.

Sincerely,

Steven H. Wisness, Director
Office of Site Services

OSS:APL

Enclosure

cc w/encl:
EDMC, H6-08
Ecology Library, Kennewick
J. R. Wilkinson, CTUIR
L. E. Ruud, Ecology
A. B. Stone, Ecology
J. E. Bramson, FHI
R. H. Engelmann, FHI
G. W. Jackson, FHI
J. F. Williams Jr., FHI
Environmental Portal, LMSI
P. Sobotta, NPT
R. Jim, YN

Enclosure

HANFORD FACILITY DANGEROUS WASTE PART A PERMIT APPLICATION,
FORM 3, REVISION 6
FOR THE
241-Z TREATMENT AND STORAGE TANKS (TSD: T-2-5)

Please print or type in the unshaded areas only
(fill- in areas are spaced for elite type, i.e., 12 character/inch).

FORM **3**

DANGEROUS WASTE PERMIT APPLICATION

1. EPA/STATE I.D. NUMBER: W A 7 8 9 0 0 0 8 9 6 7

FOR OFFICIAL USE ONLY

APPLICATION APROVED	DATE RECEIVED *(mo., day, & yr.)*	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA/STATE I.D. Number, or if this is a revised application, enter your facility's EPA/STATE I.D. Number in Section I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

☐ 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

MO.	DAY	YR.
03	22	43

* FOR EXISTING FACILITIES, PROVIDE THE DATE *(mo., day, & yr.)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*
* The date construction of the Hanford Facility commenced.

☐ 2. NEW FACILITY *(Complete item below.)*

MO.	DAY	YR.

FOR NEW FACILITIES, PROVIDE THE DATE, *(mo., day, & yr.)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION *9place an "X" below and complete Section I above)*

☒ 1. FACILITY HAS AN INTERIM STATUS PERMIT

☒ 2. FACILITY HAS A FINAL PERMIT

III. PROCESSES – CODES AND CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the codes(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the *(Section III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.

2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER (barrel, drum, etc.)	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D80	GALLONS OR LITERS
LANDFILL	D81	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D82	*ACRES OR HECTARES*
OCEAN DISPOSAL	D83	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D84	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided: Section III-C.)	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECATRES	Q

EXAMPLE FOR COMPLETING SECTION III *(shown in line numbers X-1 and X-2 below): A facility has two storage tanks; one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.*

LINE NUMBER	A. PROCESS CODE *(from list above)*	B. PROCESS DESIGN CAPACITY 1. AMOUNT *(specify)*	B. 2. UNIT OF MEASURE *(enter code)*	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE *(from list above)*	B. PROCESS DESIGN CAPACITY 1. AMOUNT *(specify)*	B. 2. UNIT OF MEASURE *(enter code)*	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S02	69,300	L		7				
2	T01	16,277	V		8				
3					9				
4					10				

Continued from the front.

III. PROCESSES (continued)

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESS (code "T04"). FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

S02

The 241-Z Treatment and Storage Tanks (241-Z) support the Plutonium Finishing Plant (PFP), which was constructed in November 1948. The 241-Z consists of storage tanks D-4, D-5, D-7, D-8, and an overflow tank. Tanks D-5 and D-8 also serve as the waste treatment tanks. These tanks, located in the belowground portion of the 241-Z Building, have a combined storage capacity of 69,300 liters (18,307 gallons). Tanks D-4 and D-5 each have a capacity of 16,400 liters (4,332 gallons), while tanks D-7 and D-8 each have a capacity of 17,900 liters (4,729 gallons). The overflow tank, located in the D-7 Vault, has a capacity of 700 liters (185 gallons) and is in place to serve only in a capacity for receiving waste that might overflow from one of the other tanks. The overflow tank is not in place to serve as storage capacity for dangerous waste. The 241-Z accumulates and stores mixed waste generated from PFP process activities. Once treated, the waste is stored before final transfer to the Double-Shell Tank (DST) System. The original construction of 241-Z included a fifth 16,400-liter (4,332-gallon) tank that also is located in the belowground portion of the facility. Tank D-6 was taken out of service and isolated from the 241-Z tank system in 1972 and never stored dangerous waste. The purpose of identifying tank D-6 is to note its existence within the 241-Z Building, but not to include it with the tank system covered by the Part A, Form 3, for the 241-Z. The maximum process design capacity for tank storage is 69,300 liters (18,307 gallons).

T01

Treatment that occurs in tanks D-5 and D-8 consists of a batch process that includes the addition of sodium hydroxide or potassium hydroxide, sodium nitrite, ferric nitrate, and water. The sodium hydroxide is added to adjust the pH of the waste to make the waste more amenable for transfer to the DST System. Ferric nitrate solution is added to provide 1 percent stable solids for transfer to the DST System, while water could be used to adjust the plutonium concentration of the waste to be transferred so that the waste meets the DST System criteria for acceptance. This treatment process makes the waste more amenable for transfer to the DST System. The maximum process design capacity for tank treatment is 16,277 liters per day (4,300 gallons per day).

IV. DESCRIPTION OF DANGEROUS WASTES

A. DANGEROUS WASTE NUMBER – Enter the four digit number from Chapter 173-303 WAC for each listed dangerous waste you will handle. If you handle dangerous wastes which are not listed in Chapter 173-303 WAC, enter the four digit number(s) that describes the characteristics and/or the toxic contaminants of those dangerous wastes.

B. ESTIMATED ANNUAL QUANTITY - For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE - For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed dangerous waste: For each listed dangerous waste entered in column A select the code(s) from the list of process codes contained in Section III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed dangerous wastes: For each characteristic or toxic contaminant entered in Column A, select the code(s) from the list of process codes contained in Section III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed dangerous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: DANGEROUS WASTES DESCRIBED BY MORE THAN ONE DANGEROUS WASTE NUMBER - Dangerous wastes that can be described by more than one Waste Number shall be described on the form as follows:

1. Select one of the Dangerous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other Dangerous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.
3. Repeat step 2 for each other Dangerous Waste Number that can be used to describe the dangerous waste.

EXAMPLE FOR COMPLETING SECTION IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*	D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2			T 0 3 D 8 0	*included with above*

Continued from page 2.
NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I. D. NUMBER *(entered from page 1)*: W A 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*	D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
1	D002	1,360,777	K	T01	Treatment - Tank
2	D004				
3	D005				
4	D006				
5	D007				
6	D008				
7	D009				
8	D010				
9	D011				
10	D019				
11	WT01				
12	WT02				Included with above.
13	D002	2,494,758	K	S02	Storage - Tank
14	D004				
15	D005				
16	D006				
17	D007				
18	D008				
19	D009				
20	D010				
21	D011				
22	D019				
23	WT01				
24	WT02				Included with above.
25					
26					

Continued from the front.

IV. DESCRIPTION OF DANGEROUS WASTE (continued)

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM SECTION D(1) ON PAGE 3.

The waste received by the 241-Z from PFP process activities could be assigned one or more of the following dangerous waste numbers as determined through process knowledge, modeling, and some process sampling. Waste could designate corrosive (D002), and/or toxic for arsenic (D004), barium (D005), cadmium (D006), chromium (D007), lead (D008), mercury (D009), selenium (D010), silver (D011), or carbon tetrachloride (D019). Depending on the waste stream received, the waste also could designate as a state-only toxic dangerous waste (WT01 or WT02).

V. FACILITY DRAWING Refer to attached drawing(s).

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS Refer to attached photograph(s).

All existing facilities must include photographs *(aerial or ground-level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*.

VII. FACILITY GEOGRAPHIC LOCATION This information is provided on the attached drawings and photos.

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*

VIII. FACILITY OWNER

☒ A. If the facility owner is also the facility operator as listed in Section VII on Form 1, "General Information," place an "X" in the box to the left and skip to Section XI below.

B. If the facility owner is not the facility operator as listed in Section VII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME *(print or type)*	SIGNATURE	DATE SIGNED
Keith A. Klein, Manager U.S. Department of Energy Richland Operations Office		5/5/00

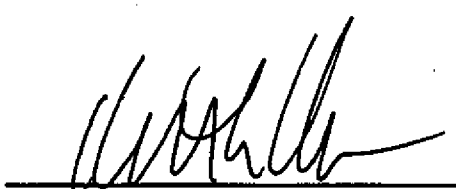
X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME *(print or type)*	SIGNATURE	DATE SIGNED
SEE ATTACHMENT		

X. OPERATOR CERTIFICATION

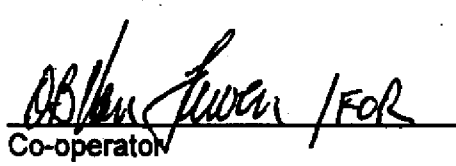
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



5/5/00

Owner/Operator
Keith A. Klein, Manager
U.S. Department of Energy
Richland Operations Office

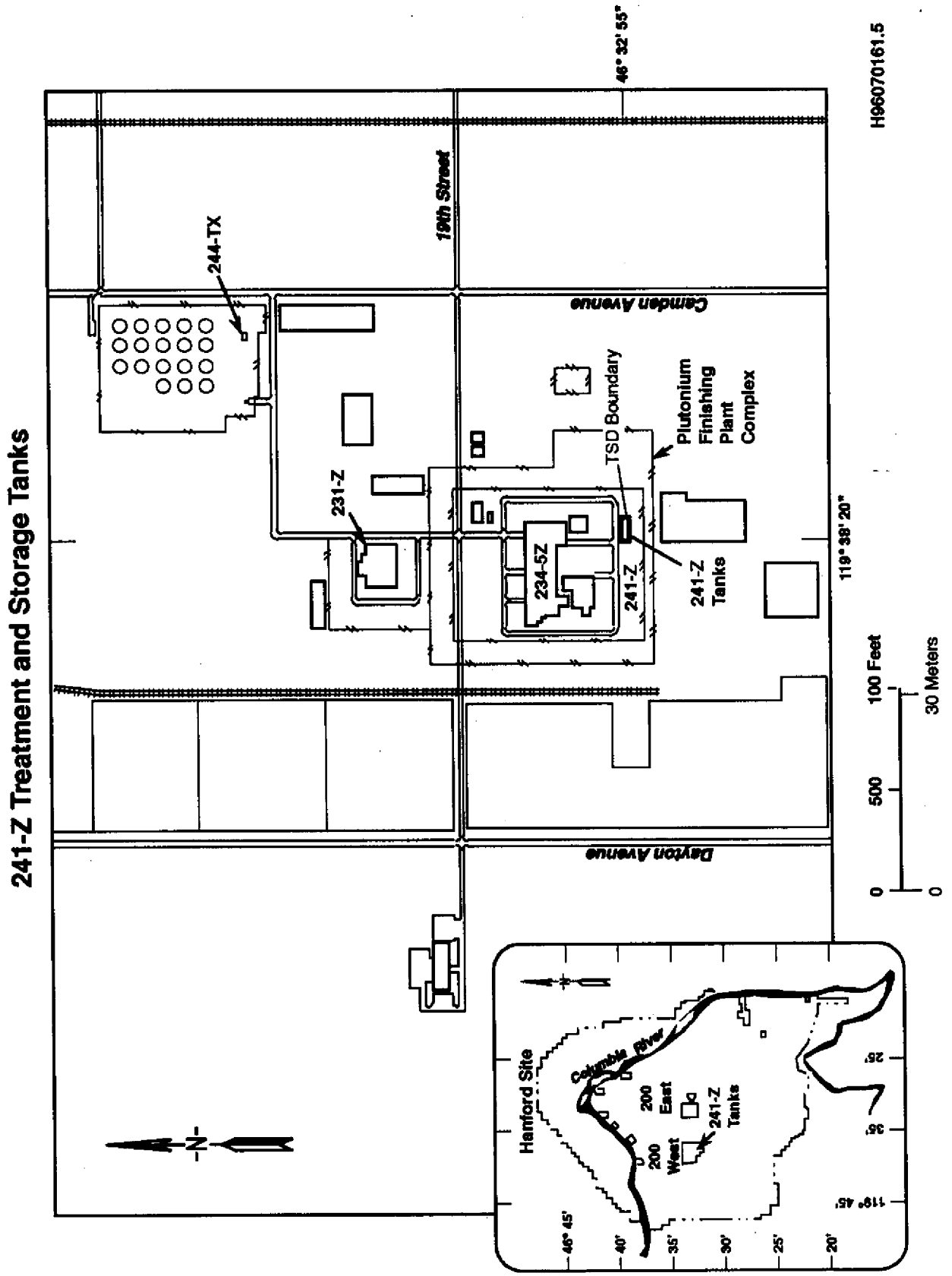
Date



4-10-00

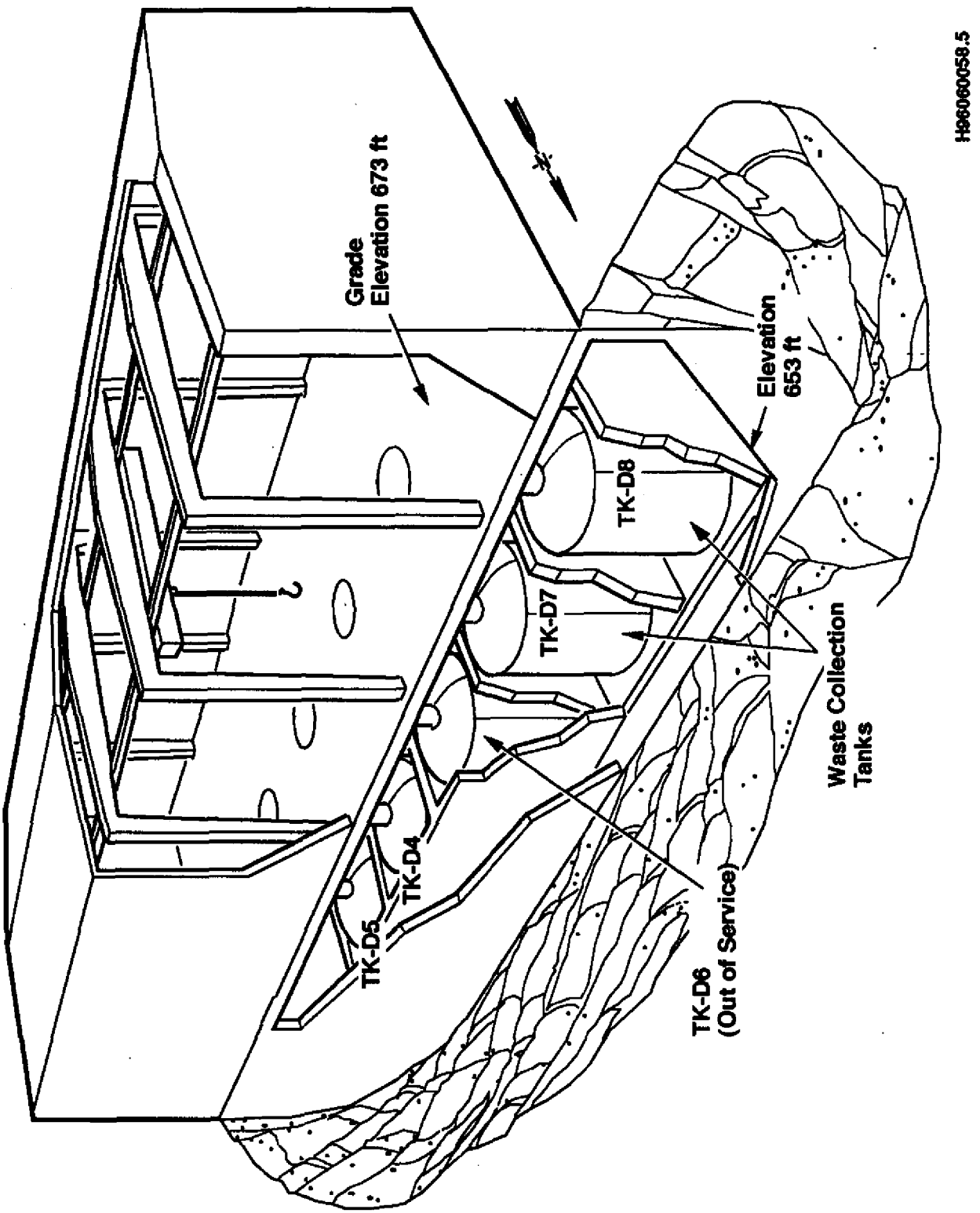
Co-operator
Ron D. Hanson
President and Chief Executive Officer
Fluor Hanford

Date

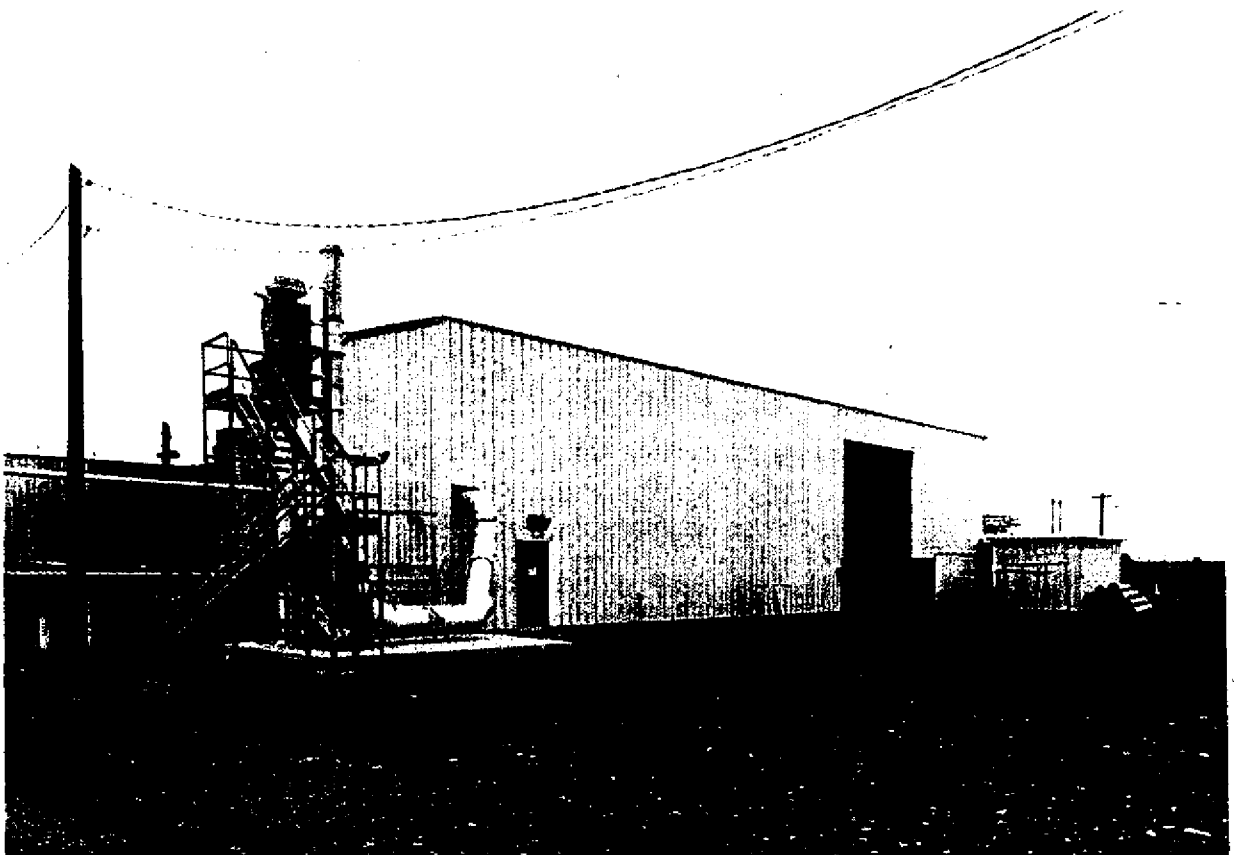

241-Z Treatment and Storage Tanks
H960701615
46° 32' 55"
119° 38' 20"
19th Street
Camden Avenue
Dayton Avenue
244-TX
231-Z
234-5Z
241-Z
241-Z Tanks
TSD Boundary
Plutonium Finishing Plant Complex
0
500
100 Feet
0
30 Meters
N
Hanford Site
Columbia River
200 East
200 West
241-Z Tanks
46° 45'
40'
35'
30'
25'
20'
119° 45'
26'
36'

241-Z Building

Cutaway View



241-Z BUILDING



46°32'58"
119°38'20"

8706219-5CN
(PHOTO TAKEN 1987)

HANFORD FACILITY DANGEROUS WASTE PART A PERMIT APPLICATION, FORM 3, FOR THE 241-Z TREATMENT AND STORAGE TANKS (241-Z)

This portion of the Hanford Facility Dangerous Waste Part A permit application (Part A) consists of Form 3, Revision 6, that describes the 241-Z unit in general terms.

The 241-Z Part A, Form 3, has been revised to add Dangerous Waste Numbers D004 (arsenic), D006 (cadmium), and D010 (selenium). The Nuclear Materials Stabilization Project will be initiating a stabilization process for the plutonium bearing solutions that will generate a large volume of mixed waste. This waste will be treated and stored in the 241-Z tank system. The addition of this dangerous waste number is required in accordance with Washington Administrative Code 173-303-805(7)(a).

The following is an overview of the contents of the 241-Z Part A, Form 3:

Section I — U.S. Environmental Protection Agency/State Identification Number – No change.

Section II — First or Revised Application – No change.

Section III — Processes - Codes and Design Capacities – No change.

Section IV — Description of Dangerous Waste - This section describes the waste that is treated and stored at 241-Z. In Block A, for Process Design Codes "T01" (Treatment – Tank) and "S02" (Storage – Tank) add Dangerous Waste Numbers D004, D006, and D010. Block B, no change. Block C, no change. Block D.1, no change. Block D.2, no change. Section IV.E, Description of Dangerous Waste add D004, D006, and D010 to text.

Section V — Facility Drawings - No change.

Section VI — Photographs - No change.

Section VII — Facility Geographic Location - No change.

Section VIII — Facility Owner - No change.

Section IX — Owner Certification - The certification is signed by the Manager, U.S. Department of Energy, Richland Operations Office (RL).

Section X — Operator Certification - An attachment is provided with Form 3 to be signed by the Manager, RL, as Owner/Operator and a corporate officer of Fluor Hanford, Inc. as Co-operator. These signatures certify management's belief that the submitted information is true, accurate, and complete.